

=====

Sequence Listing was accepted with existing errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: Mon Jun 11 12:35:42 EDT 2007

=====

Application No: 10802425 Version No: 2.0

Input Set:

Output Set:

Started: 2007-06-05 17:46:02.021
Finished: 2007-06-05 17:46:03.568
Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 547 ms
Total Warnings: 16
Total Errors: 3
No. of SeqIDs Defined: 36
Actual SeqID Count: 36

| Error code | Error Description |
|------------|---|
| W 213 | Artificial or Unknown found in <213> in SEQ ID (18) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (19) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (20) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (21) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (22) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (23) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (24) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (25) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (28) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (29) |
| E 257 | Invalid sequence data feature in <221> in SEQ ID (29) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (30) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (31) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (32) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (33) |
| E 257 | Invalid sequence data feature in <221> in SEQ ID (33) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (34) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (35) |
| E 257 | Invalid sequence data feature in <221> in SEQ ID (35) |

SEQUENCE LISTING

<110> BASSLER, BONNIE L.
DAMMEL, CAROL
SCHAUDER, STEPHAN
SHOKAT, KEVAN
STEIN, JEFFREY
SURETTE, MICHAEL G.

<120> COMPOUNDS AND METHODS FOR REGULATING BACTERIAL GROWTH
AND PATHOGENESIS

<130> 4555-128.1.1 US

<140> 10802425

<141> 2004-03-17

<150> 10/802,425

<151> 2004-03-17

<150> 10/300,818

<151> 2002-11-19

<150> 09/853,832

<151> 2001-05-10

<150> 60/203,000

<151> 2000-05-10

<150> 60/254,398

<151> 2000-12-07

<160> 36

<170> PatentIn Ver. 3.3

<210> 1

<211> 519

<212> DNA

<213> *Vibrio harveyi*

<400> 1

```
atgcctttat tagacagctt taccgtagac cacacgcgta tgaatgcacc agcgggttcgt 60
gtggcctaaaa cgatgcaaac tccaaaagga gacaccatca cggatttcga cctacgtttc 120
actgctccaa acaaagacat cttttctgag aaaggaattc atacattaga gcatttgtac 180
gcaggcttta tgcgtaatca cctaaatggt gatagcggtg agatcattga tatctcacca 240
atgggggtgcc gtactggttt ctacatgagc ttgattggta cgccttcaga gcagcaagtg 300
gctgacgctt ggattgccgc gatggaagac gtactaaaag tagaaaacca aaacaagatc 360
cctgagttga acgaatacca atgtggtaca gcagcgatgc actctctgga tgaagcgaag 420
caaatcgcgga agaacattct agaagtgggt gtggcgggtga ataagaatga tgaattggca 480
ctgccagagt caatgctgag agagctacgc atcgactaa 519
```

<210> 2

<211> 516

<212> DNA

<213> *Escherichia coli*

<400> 2

```
atgccgttgt tagatagctt cacagtcgat catacccgga tggaagcgcc tgcagttcgg 60
gtggcgaaaa caatgaacac cccgcattggc gacgcaatca ccgtgttcga tctgcgcttc 120
tgcgtgccga acaaagaagt gatgccagaa agagggatcc ataccctgga gcacctgttt 180
gctggtttta tgcgtaacca tcttaacggg aatgggtgtag agattatcga tatctcgcca 240
atgggctgcc gcaccggttt ttatatgagt ctgattggta cgccagatga gcagcgtgtt 300
gctgatgcct ggaaagcggc aatggaagac gtgctgaaag tgcaggatca gaatcagatc 360
ccggaactga acgtctacca gtgtggcact taccagatgc actcgttgca ggaagcgag 420
gatattgcgc gtagcattct ggaacgtgac gtacgcatca acagcaacga agaactggca 480
ctgccgaaag agaagttgca ggaactgcac atctag 516
```

<210> 3

<211> 110

<212> DNA

<213> *Salmonella typhimurium*

<400> 3

```
gatgtgctga aagtgcagga tcaaaaccag atcccgagc tgaacgttta ccagtgcggt 60
acgtatcaga tgcactcgct cagtgaagcg caggacattg cccgtcatat 110
```

<210> 4

<211> 492

<212> DNA

<213> *Salmonella typhimurium*

<400> 4

```
aattcggatc ataccggatg caagcgccgg cggtccgggt tgcaaaaacg atgaacaccc 60
cgcatggcga cgcaatcacg tgtttgatct gcgtttttgc attccgaaca aagaagtgat 120
gccggaaaaa gggattcata cgcttgagca tctgtttgct ggctttatgc gcgaccacct 180
caacggtaac ggcgttgaga ttatcgatat ctgcgcgatg ggctgccgca ccggctttta 240
catgagcctg attggcacgc cggacgagca gcgtgttgcc gacgcctgga aagcggcgat 300
ggcggatgtg ctgaaagtgc aggatcaaaa ccagatcccg gagctgaacg tttaccagtg 360
cgggtacgtat cagatgcact cgctcagtga agcgcaggac attgcccgtc atattctgga 420
gcgtgatgtg cgcgtgaaca gcaataaaga gctggcgtg ccgaaagaaa aactgcagga 480
actgatattt ag 492
```

<210> 5

<211> 504

<212> DNA

<213> *Haemophilus influenzae*

<400> 5

```
atgccattac ttgatagttt taaagtggat cacacaaaaa tgaacgcacc tgcagtacgc 60
attgcaaaaa cgatgctcac gccaaaaggc gataaatatta ctgtttttga tttacgtttt 120
tgtattccaa acaaagaaat tctttcccca aaaggcattc atacacttga acatttat 180
gctggattta tgcgcgatca tttaaatggc gatagcatag aaattattga tatttctccg 240
atgggatgtc gcacgggatt ttatatgtct ttgattggca caccaaatac acagaaagt 300
tctgaggctt ggtagcttc aatgcaagat gttttagggtg tacaagatca agcttctatt 360
cctgaattaa atatctatca atgcggaagc tatacggaac attccttaga agatgcacac 420
gaaattgcca aaaatgttat cgcacgcggg atagggtgtaa ataaaaatga agatttgtca 480
ctcgataatt ccttattaaa atag 504
```

<210> 6
<211> 468
<212> DNA
<213> *Helicobacter pylori*

<400> 6
atgaaaacac caaaaatgaa tgtagagagt ttttaatttg atcacacca agtcaaagcc 60
ccttatgtgc gtgtcgctga tcgcaaaaag ggcgttaatg gggatttgat tgtcaaatac 120
gatgtgcgct tcaagcagcc caaccaagat cacatggaca tgcctagcct acattcttta 180
gagcatttag tcgctgaaat tatccgcaac catgccagtt atgtcgtgga ttggtcgcct 240
atgggttgcc aaacgggatt ttatctcaca gtgttaaacc atgacaatta cacagagatt 300
ttagaggttt tagaaaagac catgcaagat gtgttaaagg ctacagaagt gcctgccagc 360
aatgaaaagc aatgcggttg ggcggctaac cacactttag agggtgctaa ggatttagcg 420
cgcgcttttt tagacaaacg cgctgagtgg tctgaagtgg gggtttga 468

<210> 7
<211> 482
<212> DNA
<213> *Bacillus subtilis*

<400> 7
atgccttcag tagaaagttt tgagcttgat cataatgcgg ttgttgctcc atatgtaaga 60
cattgcggcg tgcataaagt gggaacagac ggcgttgtaa ataaatttga cattcgtttt 120
tgccagccaa ataaacaggc gatgaagcct gacaccattc acacactcga gcatttgctc 180
gcgtttacga ttcgtttctca cgctgagaaa tacgatcatt ttgatatcat tgatatttct 240
ccaatgggct gccagacagg ctattatcta gttgtgagcg gagagccgac atcagcggaa 300
atcgttgatc tgcttgaaga cacaatgaag gaagcggtag agattacaga aatacctgct 360
gcgaatgaaa agcagtgcgg ccaagcgaag cttcatgatc tggaaaggcg taaacgttta 420
atgcgtttct ggctttcaca ggataaagaa gaattgctaa aagtatttgg ctaaaataga 480
aa 482

<210> 8
<211> 537
<212> DNA
<213> *Borrelia burgdorferi*

<400> 8
atgaatttga atgggaaaaa ttagattttg taaaaaaat acaaacagcg ctaaaaaat 60
gaaaaaaata acaagcttta caatagatca tacaaaaactc aaccctggca tatatgtctc 120
aagaaaagat acctttgaaa atgtaatatt tactacaata gacattagaa tcaaagctcc 180
caacatcgaa ccaataattg aaaacgcagc aatacataca atagagcaca taggagctac 240
tttactttag aataatgaag tttggaccga aaaaatagta tattttggcc ctatgggatg 300
cagaactggt ttttacttaa taatttttgg agactatgaa agtaaagatc ttgttgactt 360
agtctcatgg cttttttccg aaatcgtaaa tttttcagaa cctatcccag gcgcaagtga 420
taaggaatgc ggaaattaca aagaacataa ccttgatatg gctaaatatg aatcttctaa 480
atacttacia atattaaaca atattaaaga agaaaattta aaatatcctt agctcat 537

<210> 9
<211> 519
<212> DNA
<213> *Vibrio cholerae*

<400> 9
atgccattat tagacagttt taccgtcgat catactcgta tgaatgcacc ggcggtgcgt 60

```

gttgccaaaa ccatgcaaac cccaaaaggg gatacgatta ccgtatttga tttgcgtttt 120
actatgccaa acaaagatat cttgtctgag cgcggtatcc atactctaga gcatctctac 180
gcgggcttta tgcgcaatca ccttaacggc agccaagtgg agatcatcga tatttcacca 240
atgggttgcc gtacagggtt ctacatgagc ttgattggtg cgccgacaga acagcaagtg 300
gcacaagcat ggctagccgc aatgcaagat gtgttgaaa ttgaaagcca agagcaaatt 360
cctgagctga atgagtacca gtgcggcact gcggcgatgc actcgctcga agaagccaaa 420
gcgattgcga aaaacgtgat tgcggcaggc atctcggtta accgtaacga tgagttggcg 480
ctgccgaat ctatgctcaa tgagctgaag gttcactaa 519

```

<210> 10

<211> 172

<212> PRT

<213> *Vibrio harveyi*

<400> 10

```

Met Pro Leu Leu Asp Ser Phe Thr Val Asp His Thr Arg Met Asn Ala
  1             5             10             15

```

```

Pro Ala Val Arg Val Ala Lys Thr Met Gln Thr Pro Lys Gly Asp Thr
          20             25             30

```

```

Ile Thr Val Phe Asp Leu Arg Phe Thr Ala Pro Asn Lys Asp Ile Leu
      35             40             45

```

```

Ser Glu Lys Gly Ile His Thr Leu Glu His Leu Tyr Ala Gly Phe Met
      50             55             60

```

```

Arg Asn His Leu Asn Gly Asp Ser Val Glu Ile Ile Asp Ile Ser Pro
      65             70             75             80

```

```

Met Gly Cys Arg Thr Gly Phe Tyr Met Ser Leu Ile Gly Thr Pro Ser
          85             90             95

```

```

Glu Gln Gln Val Ala Asp Ala Trp Ile Ala Ala Met Glu Asp Val Leu
          100             105             110

```

```

Lys Val Glu Asn Gln Asn Lys Ile Pro Glu Leu Asn Glu Tyr Gln Cys
          115             120             125

```

```

Gly Thr Ala Ala Met His Ser Leu Asp Glu Ala Lys Gln Ile Ala Lys
          130             135             140

```

```

Asn Ile Leu Glu Val Gly Val Ala Val Asn Lys Asn Asp Glu Leu Ala
          145             150             155             160

```

```

Leu Pro Glu Ser Met Leu Arg Glu Leu Arg Ile Asp
          165             170

```

<210> 11

<211> 171

<212> PRT

<213> *Escherichia coli*

<400> 11

```

Met Pro Leu Leu Asp Ser Phe Thr Val Asp His Thr Arg Met Glu Ala

```

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Pro Ala Val Arg Val Ala Lys Thr Met Asn Thr Pro His Gly Asp Ala | | | |
| 20 | 25 | 30 | |
| Ile Thr Val Phe Asp Leu Arg Phe Cys Val Pro Asn Lys Glu Val Met | | | |
| 35 | 40 | 45 | |
| Pro Glu Arg Gly Ile His Thr Leu Glu His Leu Phe Ala Gly Phe Met | | | |
| 50 | 55 | 60 | |
| Arg Asn His Leu Asn Gly Asn Gly Val Glu Ile Ile Asp Ile Ser Pro | | | |
| 65 | 70 | 75 | 80 |
| Met Gly Cys Arg Thr Gly Phe Tyr Met Ser Leu Ile Gly Thr Pro Asp | | | |
| 85 | 90 | 95 | |
| Glu Gln Arg Val Ala Asp Val Trp Lys Ala Ala Met Glu Asp Val Leu | | | |
| 100 | 105 | 110 | |
| Lys Val Gln Asp Gln Asn Gln Ile Pro Glu Leu Asn Val Tyr Gln Cys | | | |
| 115 | 120 | 125 | |
| Gly Thr Tyr Gln Met His Ser Leu Gln Glu Ala Gln Asp Ile Ala Arg | | | |
| 130 | 135 | 140 | |
| Ser Ile Leu Glu Arg Asp Val Arg Ile Asn Ser Asn Glu Glu Leu Ala | | | |
| 145 | 150 | 155 | 160 |
| Leu Pro Lys Glu Lys Leu Gln Glu Leu His Ile | | | |
| 165 | 170 | | |

<210> 12

<211> 164

<212> PRT

<213> Salmonella typhimurium

<400> 12

| | | | |
|---|----|----|----|
| Asn Ser Asp His Thr Arg Met Gln Ala Pro Ala Val Arg Val Ala Lys | | | |
| 1 | 5 | 10 | 15 |
| Thr Met Asn Thr Pro His Gly Asp Ala Ile Thr Val Phe Asp Leu Arg | | | |
| 20 | 25 | 30 | |
| Phe Cys Ile Pro Asn Lys Glu Val Met Pro Glu Lys Gly Ile His Thr | | | |
| 35 | 40 | 45 | |
| Leu Glu His Leu Phe Ala Gly Phe Met Arg Asp His Leu Asn Gly Asn | | | |
| 50 | 55 | 60 | |
| Gly Val Glu Ile Ile Asp Ile Ser Pro Met Gly Cys Arg Thr Gly Phe | | | |
| 65 | 70 | 75 | 80 |
| Tyr Met Ser Leu Ile Gly Thr Pro Asp Glu Gln Arg Val Ala Asp Ala | | | |
| 85 | 90 | 95 | |

Trp Lys Ala Ala Met Ala Asp Val Leu Lys Val Gln Asp Gln Asn Gln
 100 105 110
 Ile Pro Glu Leu Asn Val Tyr Gln Cys Gly Thr Tyr Gln Met His Ser
 115 120 125
 Leu Ser Glu Ala Gln Asp Ile Ala Arg His Ile Leu Glu Arg Asp Val
 130 135 140
 Arg Val Asn Ser Asn Lys Glu Leu Ala Leu Pro Lys Glu Lys Leu Gln
 145 150 155 160
 Glu Thr Asp Ile

<210> 13
 <211> 167
 <212> PRT
 <213> Haemophilus influenzae

<400> 13
 Met Pro Leu Leu Asp Ser Phe Lys Val Asp His Thr Lys Met Asn Ala
 1 5 10 15
 Pro Ala Val Arg Ile Ala Lys Thr Met Leu Thr Pro Lys Gly Asp Asn
 20 25 30
 Ile Thr Val Phe Asp Leu Arg Phe Cys Ile Pro Asn Lys Glu Ile Leu
 35 40 45
 Ser Pro Lys Gly Ile His Thr Leu Glu His Leu Phe Ala Gly Phe Met
 50 55 60
 Arg Asp His Leu Asn Gly Asp Ser Ile Glu Ile Ile Asp Ile Ser Pro
 65 70 75 80
 Met Gly Cys Arg Thr Gly Phe Tyr Met Ser Leu Ile Gly Thr Pro Asn
 85 90 95
 Glu Gln Lys Val Ser Glu Ala Trp Leu Ala Ser Met Gln Asp Val Leu
 100 105 110
 Gly Val Gln Asp Gln Ala Ser Ile Pro Glu Leu Asn Ile Tyr Gln Cys
 115 120 125
 Gly Ser Tyr Thr Glu His Ser Leu Glu Asp Ala His Glu Ile Ala Lys
 130 135 140
 Asn Val Ile Ala Arg Gly Ile Gly Val Asn Lys Asn Glu Asp Leu Ser
 145 150 155 160
 Leu Asp Asn Ser Leu Leu Lys
 165

<210> 14

<211> 155

<212> PRT

<213> *Helicobacter pylori*

<400> 14

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Thr | Pro | Lys | Met | Asn | Val | Glu | Ser | Phe | Asn | Leu | Asp | His | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Val | Lys | Ala | Pro | Tyr | Val | Arg | Val | Ala | Asp | Arg | Lys | Lys | Gly | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Gly | Asp | Leu | Ile | Val | Lys | Tyr | Asp | Val | Arg | Phe | Lys | Gln | Pro | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Asp | His | Met | Asp | Met | Pro | Ser | Leu | His | Ser | Leu | Glu | His | Leu | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Glu | Ile | Ile | Arg | Asn | His | Ala | Ser | Tyr | Val | Val | Asp | Trp | Ser | Pro |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Cys | Gln | Thr | Gly | Phe | Tyr | Leu | Thr | Val | Leu | Asn | His | Asp | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Thr | Glu | Ile | Leu | Glu | Val | Leu | Glu | Lys | Thr | Met | Gln | Asp | Val | Leu |
| | | 100 | | | | | | 105 | | | | | 110 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ala | Thr | Glu | Val | Pro | Ala | Ser | Asn | Glu | Lys | Gln | Cys | Gly | Trp | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Asn | His | Thr | Leu | Glu | Gly | Ala | Lys | Asp | Leu | Ala | Arg | Ala | Phe | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Lys | Arg | Ala | Glu | Trp | Ser | Glu | Val | Gly | Val |
| 145 | | | | 150 | | | | | 155 | |

<210> 15

<211> 157

<212> PRT

<213> *Bacillus subtilis*

<400> 15

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ser | Val | Glu | Ser | Phe | Glu | Leu | Asp | His | Asn | Ala | Val | Val | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Tyr | Val | Arg | His | Cys | Gly | Val | His | Lys | Val | Gly | Thr | Asp | Gly | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asn | Lys | Phe | Asp | Ile | Arg | Phe | Cys | Gln | Pro | Asn | Lys | Gln | Ala | Met |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Pro | Asp | Thr | Ile | His | Thr | Leu | Glu | His | Leu | Leu | Ala | Phe | Thr | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | His | Ala | Glu | Lys | Tyr | Asp | His | Phe | Asp | Ile | Ile | Asp | Ile | Ser |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |

Pro Met Gly Cys Gln Thr Gly Tyr Tyr Leu Val Val Ser Gly Glu Pro
85 90 95

Thr Ser Ala Glu Ile Val Asp Leu Leu Glu Asp Thr Met Lys Glu Ala
100 105 110

Val Glu Ile Thr Glu Ile Pro Ala Ala Asn Glu Lys Gln Cys Gly Gln
115 120 125

Ala Lys Leu His Asp Leu Glu Gly Ala Lys Arg Leu Met Arg Phe Trp
130 135 140

Leu Ser Gln Asp Lys Glu Glu Leu Leu Lys Val Phe Gly
145 150 155

<210> 16

<211> 173

<212> PRT

<213> *Borrelia burgdorferi*

<400> 16

Met Gly Lys Ile Arg Phe Cys Lys Lys Asn Thr Asn Ser Ala Lys Lys
1 5 10 15

Met Lys Lys Ile Thr Ser Phe Thr Ile Asp His Thr Lys Leu Asn Pro
20 25 30

Gly Ile Tyr Val Ser Arg Lys Asp Thr Phe Glu Asn Val Ile Phe Thr
35 40 45

Thr Ile Asp Ile Arg Ile Lys Ala Pro Asn Ile Glu Pro Ile Ile Glu
50 55 60

Asn Ala Ala Ile His Thr Ile Glu His Ile Gly Ala Thr Leu Leu Arg
65 70 75 80

Asn Asn Glu Val Trp Thr Glu Lys Ile Val Tyr Phe Gly Pro Met Gly
85 90 95

Cys Arg Thr Gly Phe Tyr Leu Ile Ile Phe Gly Asp Tyr Glu Ser Lys
100 105 110

Asp Leu Val Asp Leu Val Ser Trp Leu Phe Ser Glu Ile Val Asn Phe
115 120 125

Ser Glu Pro Ile Pro Gly Ala Ser Asp Lys Glu Cys Gly Asn Tyr Lys
130 135 140

Glu His Asn Leu Asp Met Ala Lys Tyr Glu Ser Ser Lys Tyr Leu Gln
145 150 155 160

Ile Leu Asn Asn Ile Lys Glu Glu Asn Leu Lys Tyr Pro
165 170

<210> 17

<211> 172

<212> PRT

<213> *Vibrio cholerae*

<400> 17

Met Pro Leu Leu Asp Ser Phe Thr Val Asp His Thr Arg Met Asn Ala
1 5 10 15

Pro Ala Val Arg Val Ala Lys Thr Met Gln Thr Pro Lys Gly Asp Thr
20 25 30

Ile Thr Val Phe Asp Leu Arg Phe Thr Met Pro Asn Lys Asp Ile Leu
35 40 45

Ser Glu Arg Gly Ile His Thr Leu Glu His Leu Tyr Ala Gly Phe Met
50 55 60

Arg Asn His Leu Asn Gly Ser Gln Val Glu Ile Ile Asp Ile Ser Pro
65 70 75 80

Met Gly Cys Arg Thr Gly Phe Tyr Met Ser Leu Ile Gly Ala Pro Thr
85 90 95

Glu Gln Gln Val Ala Gln Ala Trp Leu Ala Ala Met Gln Asp Val Leu
100